

Green Screen Production and Compositing

Course Developer

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Course Description

In this course, students will explore all phases of green screen production and post-production compositing. Topics covered will be planning/storyboarding, staging & setup, proper green/blue screen lighting, working with virtual sets, motion tracking and compositing techniques. Upon completion students should be able to correctly plan, setup, light and shoot their green screen footage and properly composite it with the background footage and imagery.

Course Objectives

Upon completion of this course students will be able to:

- Understand and apply basic concepts of green/blue screen production in both professional studios and Indie filmmaking scenarios
- Create proper set plans and storyboard their actors before shooting
- Properly setup a green screen stage and light it correctly
- Know how to adjust lighting using a vector scope to assure proper exposure
- Plan for & produce green screen footage for use with a virtual set
- Apply knowledge of motion tracking techniques for complex compositing shots
- Produce good composites even with poorly-shot & problematic green screen footage
- Create a final video which demonstrates advanced skills in advanced shooting, editing and compositing techniques

Course Prerequisite

- Basic Video Production & Camera Operation
- Intermediate NLE Editing and Post Production Applications (Final Cut Pro, Adobe After Effects CS4 or later, Adobe Premiere Pro CS4 or later)

Class Breakdown

9 weeks

Lecture Hours: 32 (8x4hr or 16x2hr sessions)

Lab: 76 (9x8hr + 4hr final week)

Total Hours: 108

Credit Hours

CA = 6.5 credit hours (*based on CA State Accreditation projections*)

Course Texts and Materials

The Green Screen Handbook: Real-World Production Techniques
(w/DVD – Sybex/Wiley, pub.) ISBN#9780470521076

Teaching Strategies

Teaching strategies for this course will be a combination of lecture, class discussion, live demonstration, hands-on practice and projects.

Course Outline

Part 1: Exploring the Matte Process (Weeks 1-3)

- History of the Compositing – the Color Difference Matte
- Basic Shooting Setups & Compositing Techniques
- Simple setups – Live Broadcasting & Pro Studios

Part 2: Setting the Scene (Weeks 4-6)

- Choosing the Right Matte Process for your Project – Camcorder Overview
- Proper Lighting Techniques & Matching Foreground/Background
- Storyboarding and Directing Your Talent

Part 3: Compositing the Footage (Weeks 7-8)

- Best practices in Compositing & Fixing Problem Shots
- Virtual Sets and Motion Tracking

Final Project

Week 1 – Lesson Plan

- **History of the Compositing – the Color Difference Matte**

(*Chapters 1, 2 & 7*)

This week explores the history of compositing up to modern-day TV & Motion Picture production. Technical explanation for the common question “Should I Used Green or Blue Screen?”. It also gives an overview of the different kinds of hardware/software compositing tools that are on the market and a look at how both Indie filmmakers and large production studios create dazzling special effects with green & blue screen composites.

Final Project Planning: Divide students in groups of 3 or more to start planning final video project. The material they’ll cover in the weeks ahead will help them plan and fine-tune their production before they ever start to shoot.

(*Alternative: Have students plan individual projects*)

Chapter Synopses for this Week's Lesson Plan:

Chapter 1: Mattes and Compositing Defined

Often misrepresented as chroma keying, the *matting* or *traveling matte* process uses a sophisticated series of elements that allow you to make more complex extractions and composites.

Chapter 2: Digital Matting Methods and Tools

This chapter addresses the question, "Why should I use green screen over blue screen?" and what kinds of hardware/software compositors are available today.

Chapter 7: How the Pros Do It

This chapter gives you a real-world look at studios and productions from HBO's *John Adams* miniseries to successful and industrious Indie filmmakers' homespun productions.

Includes PowerPoint

References & Footage on DVD with Book

Week 2 – Lesson Plan

- **Basic Shooting Setups & Compositing Techniques**

(Chapters 3 & 4)

Covers simple lighting/setup scenarios, including various background materials, staging and positioning of talent. Also demonstrates compositing and matte/masking techniques using most popular software applications and plug-ins.

Discussion: How can a production be completed with the resources available at the school? What types of green screen shots can be achieved on-site? What can be created portably?

Look up some references live from end of chapters in book.

Chapter Synopses for this Week's Lesson Plan:

Chapter 3: Basic Shooting Setups

The foundational elements for shooting all green screen setups are the materials used and the lighting of the background and the foreground subjects, including how these elements are positioned in relation to each other.

Chapter 4: Basic Compositing Techniques

This chapter introduces you to the various methods of keying and matting with both hardware and software keyers and compositors.

Includes PowerPoint

References & Footage on DVD with Book

Week 3 – Lesson Plan

- **Simple Setups on a Budget & Live TV Broadcasting**

(Chapters 5 & 6)

Explore how to get a decent green screen shot on a budget – from choice of materials to making your own lights*. Compare with how a live broadcast production is created. Discuss how your local or regional TV stations use green screen for their broadcasts. Practice folding a Lastolite Panel if one is available.

**Possible Class Project:* Build a set of NanoLights for use in your studio or portable applications.

Chapter Synopses for this Week’s Lesson Plan:

Chapter 5: Simple Setups on a Budget

Don’t have the budget for a dedicated green screen studio and professional lighting? This chapter will show you how to still get good results when shooting outdoors or how to build your own studio lights for around \$100.

Chapter 6: Green Screens in Live Broadcasts

We’ve all watched the TV news and seen the large weather maps that the meteorologist stands in front of while delivering the evening’s weather forecast. Now, learn how that’s done in the real world.

Includes PowerPoint

References & Footage on DVD with Book

Week 4 – Lesson Plan

- **Choosing the Right Matte Process & Camcorder Overview**

(Chapters 8 & 11)

A quick overview of the different types of green screen production and which would best suit the project you’re working on. Chances are, the school may have only one studio/setup with either fixed or portable lights, so options may be limited. Live hardware compositing and Reflecmedia systems may not be available.

An overview of camcorders and technology to help students understand what they will be shooting with. (Availability of on-site camcorders and gear may be limited). The importance of using a hardware or software scope on the set is explored. Use Adobe OnLocation, Final Cut Pro or ScopeBox to demonstrate the process.

Final Project Planning: This week the students should have a good idea of the type of project they'd like to do for their final. Some advance preview of the next two weeks may be in order if you have a lot of students to get through the studio to shoot their productions. This will obviously vary depending on studio availability and your scheduling with lab/class hours.

Chapter Synopses for this Week's Lesson Plan:

Chapter 8: Choosing the Right Matting Process for Your Project

This chapter is about understanding the tools and processes before you plan your budget, if possible. Knowing how you'll achieve the results the project calls for will dictate the path you take and what that workflow will entail.

Chapter 11: Digital Cameras and Camcorders

This chapter covers some of the basics of how digital cameras and camcorders work, and what to watch out for when selecting a camera to use for your green screen work.

Includes PowerPoint

References & Footage on DVD with Book

Week 5 – Lesson Plan

- **Proper Lighting Techniques & Matching Foreground/Background**
(Chapters 9, 10 & 13)

This week challenges the students with various scenarios for lighting, staging and compositing. This should help them determine what their actors will be doing and where they need to place their lighting. This will be a precursor to the following week where they will be drawing their storyboards for their action sequences and get ready for production. Their scripts should be finalized before they layout their storyboards, where it all comes to life.

In The Studio: Explore different lighting scenarios live in the studio as much as possible. Utilize different background footage, virtual sets and imagery for reference while setting up the lighting of the green screen shots. Use a scope to maximize the best exposure results for the sample footage captured. Return to the classroom and test-composite a few frames live to demonstrate how the various lighting angles work with the intended backgrounds.

Chapter Synopses for this Week's Lesson Plan:

Chapter 9: Proper Lighting Techniques

Nothing wastes more time than shooting a great scene with the wrong lighting for the intended composition. This chapter shows you the proper techniques for lighting your background screen and the subjects.

Chapter 10: Matching Your Subjects to the Background

This chapter introduces some of the basic elements to look out for, including matching lighting angles, compositing tips, and motion tracking.

Chapter 13: Interacting with the Background and Objects

With the proper lighting, staging, and prop preparation, you can put your subject into nearly any virtual world or scene, complete with props and other objects the subjects may come in contact with.

Includes PowerPoint
References & Footage on DVD with Book

Week 6 – Lesson Plan

- **Storyboarding and Directing Your Talent**

(Chapter 12)

Before your students start shooting footage for their projects, they need to understand just what shots they will need to prepare for. Staging, lighting and camera angles are all important to know BEFORE heading into the green screen studio. Also preparing the actors to be sure they understand what they need to do as soon as the cameras are on them. This is important for them to understand once they get out in the real world and have to pay equipment rentals, studio time, actors, camera operators & crew – all by the hour or day rate. It's also important to minimize re-take time in the studio, as other students may need to work within a limited schedule.

Project Goals: Complete storyboards and begin scheduling production time for shooting the green screen shots and live action/B-roll footage for final project.

Chapter Synopses for this Week's Lesson Plan:

Chapter 12: Storyboarding and Directing Your Talent

The better you can communicate your production ideas to your talent and crew, the more successful your project will be, both in front of the green screen and in the post-production process.

Includes PowerPoint
References & Footage on DVD with Book

Week 7 – Lesson Plan

- **Best practices in Compositing & Fixing Problem Shots**

(Chapters 14 - 16)

This week covers post-production compositing overall. Picking up from previous weeks production planning and working with the best possible footage captured in the studio. Some examples of how to work with underexposed or poorly lit green screens is covered (it's inevitable and possibly out of the control of the compositor at times). Best practices in achieving a believable composite including color balancing the foreground and background plates are also covered.

Final Project Production Continues: Students should be well under-way with their video productions and begin compositing during lab time the next two weeks.

Chapter Synopses for this Week's Lesson Plan:

Chapter 14: Getting a Great Matte

Getting a great matte depends on many production factors: lighting setup, screen background, camera and lens, subject staging, shadows and reflections, and more.

Chapter 15: Color Balancing the Subject and Background

It's not always possible to perfectly match the color temperature of your lighting on the green screen stage and on your background plate, so this chapter gives you post-production solutions for color corrections and matching plates.

Chapter 16: Fixing Problem Green Screen Shots

The most common problems with poor green screen or blue screen shots result from improper lighting, poor positioning, and the use of backgrounds that are the wrong color. This chapter shows you how to work around most any poorly shot scenario.

Includes PowerPoint

References & Footage on DVD with Book

Week 8 – Lesson Plan

- **Virtual Sets and Motion Tracking**

(Chapters 17-19)

Exploring different virtual sets and how you can work with them. There are several examples in the book and links to sites where some can be downloaded for free. Students may wish to create their own.

Motion tracking is necessary when either the green screen foreground footage has to match that of the background footage already captured, or vice-versa. There are examples of both motion tracking and matchmoving in the book chapters and on the DVD. Use these concepts as needed for student projects.

Final Project Production Continues: Students should be completing their shooting and working on post-production compositing and editing.

Chapter Synopses for this Week's Lesson Plan:

Chapter 17: Working with Virtual Sets

Virtual sets are more commonplace in the commercial television and corporate video production landscape, and this chapter shows you how they're created and implemented with green screen shots and live broadcasts.

Chapter 18: Motion Tracking and Matchmoving

This chapter will show you some examples of the hardware used for various motion-control techniques and tracking tips for software trackers, plus a few secrets for faking it visually.

Chapter 19: Complex Composites

Sometimes it's necessary to extract your subject from between two surfaces or have them interact with the surfaces in some manner, retaining the shadows on the surfaces. This chapter will show you some examples of production techniques.

Includes PowerPoint

References & Footage on DVD with Book

Week 9 – Lesson Plan

- **Final Project Wrap-Up & Review**

Grading and open classroom review/critique of final project videos.

Grading & Policies (*Insert as required per your institution's guidelines)

For more information, updates and support, contact author Jeff Foster at <http://PixelPainter.com>